

TWO NEW SPECIES OF *STYLIDIUM* FROM WESTERN AUSTRALIA

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ABSTRACT

Stylidium lowrieianum (subgenus *Tolypangium*, section *Sazifragoideae*) and *S. edentatum* (subgenus *Centridium*), both from the southern part of Western Australia, are described.

KEY WORDS: *Stylidium*, Stylidiaceae, Western Australian flora.

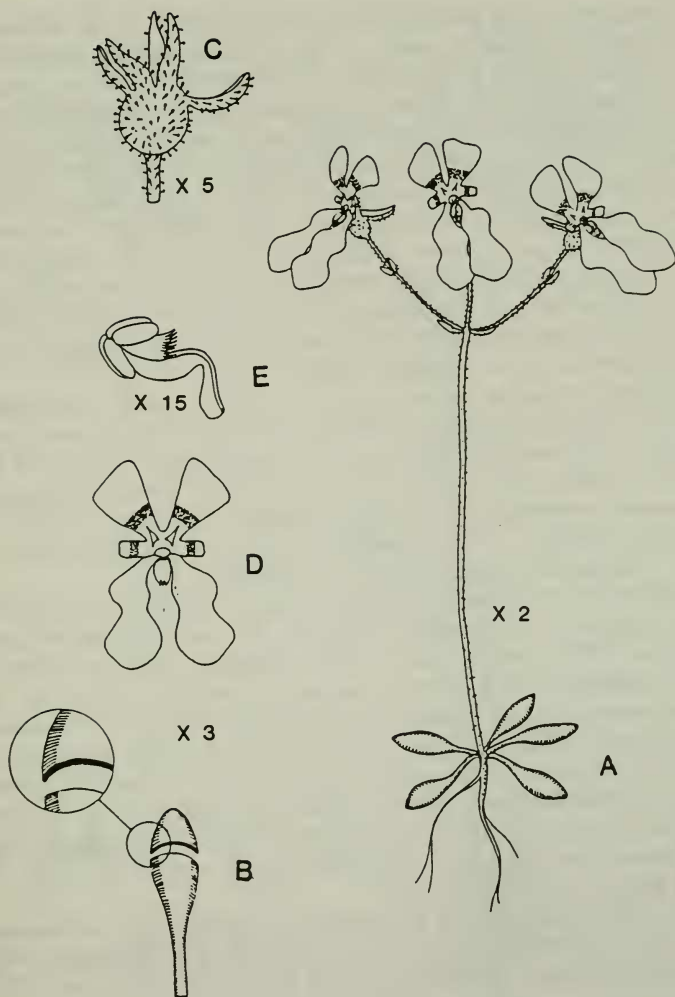
TAXONOMIC TREATMENT

Both of the new species described here are easy to place within the taxonomic system. The first belongs in the subgenus *Centridium* Lindley, the second is assigned to section *Sazifragoideae* Mildbraed of subgenus *Tolypangium* Endl. These two new species were discovered by Allen Lowrie and sent to Sherwin Carlquist.

1. *Stylidium edentatum* (Figure 1)

Stylidium edentatum Lowrie & Carlquist, *spec. nov.* HOLOTYPE: In white sands of the floodplain of the upper Phillips River, on Fitzgerald Road 2.3 km from the Hyden-Ravensthorpe Road, Western Australia, September 25, 1989, *Allen Lowrie* (RSA).

Annua pilis glanduliferis adpersa imprimis in inflorescentia. Folia radicalia, glabra, rosulata, elliptica, recurvata, in petiolum subaequilongum vel brevior angustata, cum petiolis 0.3-0.8 cm longa. Scapi solitarii corymbum laxum pauciflorum dichasie efformantem gerentes, ca 6 cm alti. Flores longi pedicellati, satis conspicui. Calycis tubus subglobosus, 2 mm altus, lobi 2 mm alti, subaequales. Corollae tubus perbrevis; laciniae inaequales, posteriores 2 cuneatae, truncatodentatae basi, anteriores longiores, hemipanduriformes. Corolla alba, basi roseomaculatae, bidenticulata. Labellum petaloideum, cymbiforme, apice fimbriatum. Columna submedio geniculata, geniculo processu retrorsum curvato non instructa, stigma barbatum inter antheras. Capsula ovatoglobosa, 2-2.5 mm longa. Semina numerosa, subglobosa.



A. Lowrie. 1989.

Figure 1: *Stylidium edentatum*. A. Habit of plant. B. Leaf, with enlarged portion. C. Ovary and calyx lobes. D. Face view of flower. E. Column, showing lack of tooth.

Annual with sparse glandular hairs, hairs primarily in the inflorescence. Leaves forming a glabrous rosette at soil level (Figure 1A). Leaves elliptic, tapering into a petiole about as long as the lamina, 0.3-0.8 cm long, margins recurved (Figure 1B). Scape solitary, bearing a lax, few flowered corymb about 6 cm tall (Figure 1A). Inferior ovary subglobose, 2 mm long, calyx lobes subequal, about 2 mm long (Figure 1C). Corolla tube very short, the corolla lobes unequal, the posterior two cuneate with a truncate lateral tooth near the base, the anterior two hemipandurate in shape (Figure 1D). Corolla white, provided with a spur, with rose markings at the base of the posterior corolla lobes; two small toothlike throat appendages present; labellum petaloid, boat-shaped, with a fimbriate tip (Figure 1D). Column bent near the middle, not provided with a recurved appendage; stigma borne among anthers and strongly pilose (Figure 1E). Seeds numerous, globose.

Stylidium edentatum represents a distinctive but hitherto overlooked relative of the common species *S. calcaratum* R. Br. (Figure 2) and *S. ecorne* (F. Muell. ex Erickson & Willis) Farrell & James (Figure 3). Farrell & James (1979) have demonstrated that *S. ecorne* is worthy of specific recognition: its chromosome number and other features represent morphological distinctness and genetic isolation. If *S. ecorne* and *S. calcaratum* are distinct from each other, *S. edentatum* is equally worthy of recognition.

Stylidium ecorne (Figure 3) is distinct from *S. calcaratum* (Figure 2) by virtue of lack of a spur (compare Figure 2A, 3A) and its large seed number (Mildbraed 1908; Farrell & James 1979). *Stylidium edentatum* differs from both *S. calcaratum* and *S. ecorne* by having long petioles on leaves, by having recurved leaves (compare Figures 1B, 2B, 2C), by having no retrorse appendage on its column (compare Figures 1E, 2F, 2G, 3F, 3G). The posterior corolla lobes of *S. edentatum* are cuneate, obtuse and unlobed (Figure 1D), whereas those of *S. calcaratum* are tridentate (Figure 2D), and those of *S. ecorne* are tridentate (Figure 3D) or unlobed and acute (Figure 3E). The corolla lobes of *S. edentatum* have a distinctive blunt lateral tooth, marked with rose, at the base of each posterior corolla lobe.

Other species in subgenus *Centridium*, in addition to *S. calcaratum*, *S. ecorne* and *S. edentatum* include *S. perpusillum* Hook. f. (Mildbraed 1908), *S. ceratophorum* Schwarz (Schwarz 1927) and *S. longicornu* (Carlquist 1979).

2. *Stylidium lowrieianum* (Figure 4)

Stylidium lowrieianum Carlquist, *spec. nov.* HOLOTYPE: In sandy soil beneath *Agonis flexuosa* trees, Wilderness Road, 1 km west of Caves Road, Western Australia (County Road Directory of Western Australia map 14, E8), November 4, 1988, Allen Lowrie (RSA).

Perennis fere glabra saepe glaucescens, caudice elongato, nudoso. Folia radicalia. dense rosulata, oblanceolata, petiolata, acuta,

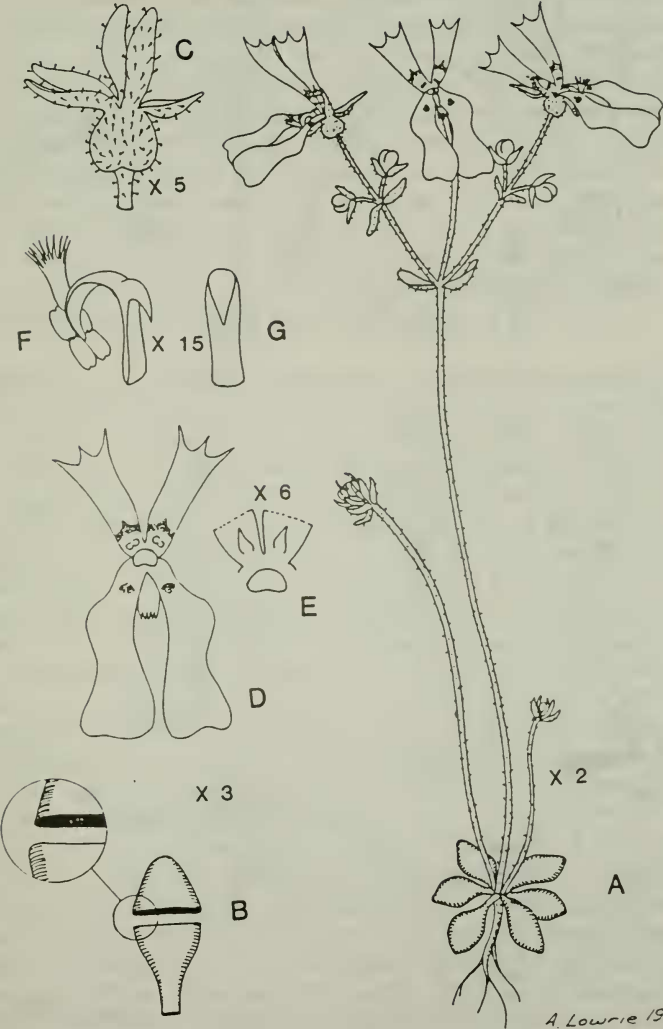


Figure 2: *Stylidium calcaratum*. A. Habit of plant. B. Leaf, with enlarged portion. C. Ovary and calyx lobes; D. Face view of corolla. E. Base of corolla lobes to show throat appendages. F. Lateral view of column. G. Dorsiventral view of column to show retrorse tooth.

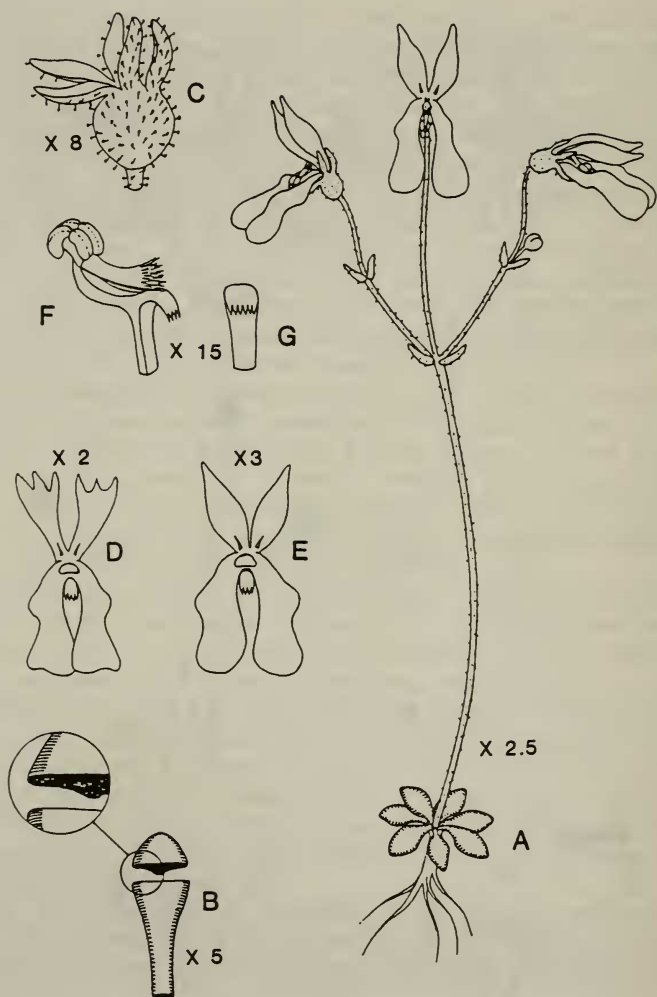


Figure 3: *Stylidium ecorne*. A Habit of plant. B. Leaf, with enlarged portion. C. Ovary and calyx lobes. D. Corolla with tridentate posterior lobes. E. Corolla with entire posterior lobes. F. Lateral view of column. G. Dorsiventral view of column, showing fringed retrorse tooth.

supra olivacea, subtus pallidiora, flabellatim venosa, parte laminae marginali undulata. Scapi racemosi, erecti, glabri vel sparse glandulosi, pruinoglaucoscenti, 50-60 cm longi, verticillis 2-3, parte superiore scaporum 2-6 bracteis sparsis alternatis instructi. Pedicelli ut videtur semper uniflori, sparse glandulosi, medio vel supra medium prophyllis 2 oppositis minutis linearibus praediti. Calycis lobi lanceolati, glabri, acuti, tubo glabro vel sparse glanduloso-pubescenti, subaequilongi, 2-2.5 mm longi. Corolla extus intusque albidorubrae, laciniae 2 posteriores cuneatae, 4.5 mm longae, 2 anteriores obovatae, 6.0 mm longae. Appendices faucis 6, 4 anteriores supra medio uniti, 2 posteriores lineares. Labellum lanceolatum, appendiculatum. Capsula quadranguloglobosa, 3 mm longa.

Perennial, glabrous and often glaucescent, growing from an elongate caudex with swellings at the nodes (Figure 4A). Rosette of basal leaves dense, the leaves thin and olive green above, paler (glaucous) below. Leaves oblanceolate, petiolate, with flabellate veins, the margin markedly undulate. Scape a glaucous raceme 50-60 cm tall, provided with 2-3 verticils of bracts plus, in the upper portion, 2-6 alternate linear bracts (Figure 4A); bracts acute. Pedicels one flowered, glandular pubescent, provided with two short opposite bracteoles below the middle, 2-2.5 mm long (Figure 4C), green. Ovary waxy glaucous, with subequal lanceolate acuminate lobes, a few glandular hairs at the base of the calyx lobes (Figure 4C). Corolla white suffused pink outside and inside, corolla lobes paired vertically, the posterior two corolla lobes cuneate, 4.5 mm long, the anterior two lobes obovate, 6.0 mm long (Figure 4D). Throat appendages 6 and without enlarged tips, the 4 anterior ones united in pairs above the middle, the 2 posterior ones linear (Figure 4E). Labellum lanceolate, with a pair of lanceolate lateral appendages (Figure 4I). Capsule ovoid-globose, four angled, exceeding 3 mm at maturity.

Stylidium lowrieianum is clearly a relative of *S. amoenum* R. Br., *S. articulatum* R. Br., *S. brunonianum* Benth., *S. glaucum* Labill., *S. maillandianum* Pritzel and *S. striatum* Lindley. From all of these, *S. lowrieianum* differs by the markedly crisped or undulate leaf margins (Figure 4A, B), elongate stems with swollen zones (which demarcate termination of growth events), and the fusion of two pairs of throat appendages (Figure 4E). The elongate stems are related to the deep leaf litter in which this species grows. In addition, *S. lowrieianum* can be differentiated from the species mentioned in a series of characters listed in the paragraphs below.

Stylidium amoenum has the following features different from those of *S. lowrieianum*: leaves thick; a single whorl of bracts present on the inflorescence; pedicels reddish brown; lowermost pedicels two flowered; ovary conspicuously glandular and reddish; corolla lobes paired laterally; throat appendages in threes, with enlarged tips; labellum without appendages.

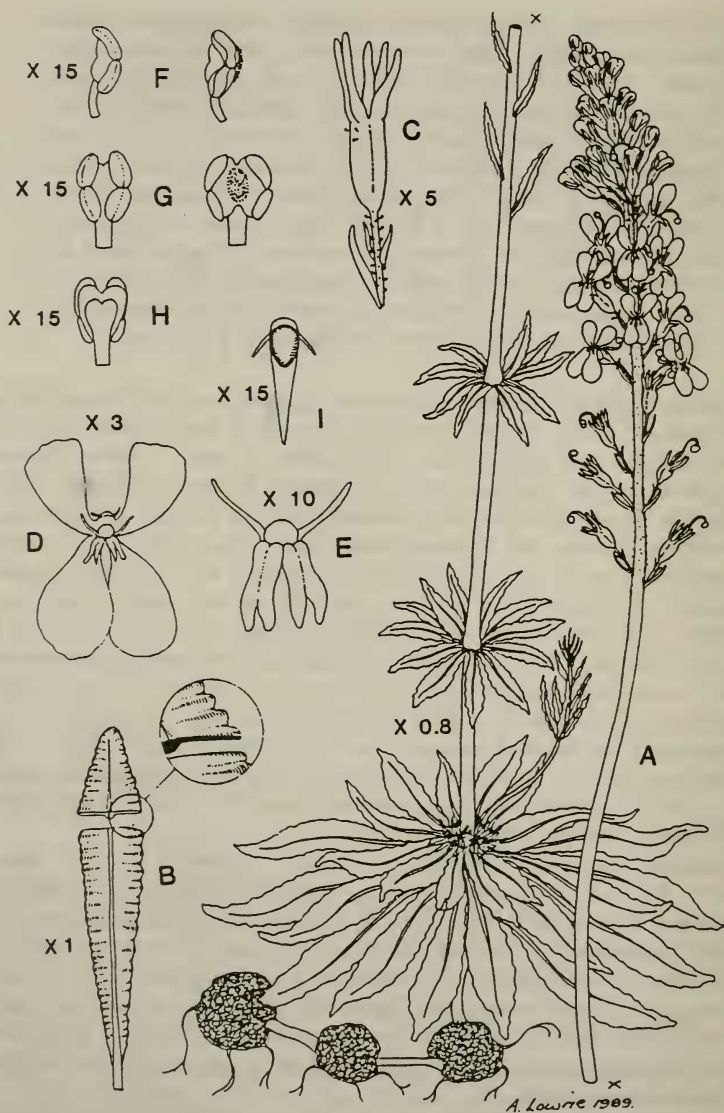


Figure 4: *Stylidium lowrieianum*. A. Habit of plant. B. Leaf, with enlarged portion. C. Pedicel, ovary and calyx lobes. D. Face view of corolla. E. Throat appendages of corolla. F. Lateral view of column tip (with stigma grown out, right). G. Face view of column tip (with stigma grown out, right). H. Back view of column tip. I. Labellum.

Stylidium articulatum has apparently not been collected since the Drummond collection cited by Mildbraed (1908), and is thus an incompletely known species. From the description by Mildbraed (1908), however, one may cite the following features of *S. articulatum* by which it appears to differ from *S. lowrieianum*: leaves thick; inflorescence short and stout with one or two whorls of bracts; pedicels densely glandular hairy; ovary glandular, 5 mm long; calyx lobes blunt; corolla appendages capitate; labellum without appendages; capsules 6-8 mm long.

Stylidium brunonianum has the following features not seen in *S. lowrieianum*: leaves narrow, lanceolate, not disposed in a flat rosette; leaves equally glaucous on both surfaces; pedicels dark red; calyx lobes blunt; corolla rosy pink; throat appendages of corolla capitate; labellum without appendages.

Stylidium glaucum has the following features not found in *S. lowrieianum*: leaves ovate-spatulate; scapes often several; scapes with a single whorl of bracts but many scattered alternate bracts; lowermost pedicels two flowered; pedicels glabrous; corolla with dark spots at the bases of corolla lobes; throat appendages curved; labellum without appendages.

Stylidium maitlandianum differs from *S. lowrieianum* by having the following features: leaves thick, semisucculent, in a flat rosette with leaves of various lengths, displayed in imbricate fashion; leaves with a conspicuous translucent hyaline margin; flowers along more than half the length of the inflorescence; calyx lobes blunt; labellum without appendages.

Stylidium striatum has the following character states not seen in *S. lowrieianum*: leaves short (typically 3 cm long, 0.8 mm wide); inflorescences with only one or two verticils of bracts; lowermost pedicels sometimes two flowered; pedicels reddish; inflorescence bracts blunt; calyx lobes blunt; corolla appendages capitate.

Other species in section *Saxifragoideae* of subgenus *Tolypangium* are farther from *S. lowrieianum* than the above species. The closest, of species not hitherto mentioned, are perhaps *S. carnosum* Bentham and *S. diversifolium* R. Br., which have thick, succulent leaves; densely glandular ovaries; blunt calyx lobes; corolla lobes white, paired laterally; capitate throat appendages; and no appendages on the labellum.

The above review demonstrates that *S. lowrieianum* is not closer to any one species in the group than to others. The species with which it is most closely compared are approximately equidistant from each other.

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